

11. Apparatus for producing labels including, feed means operable to intermittently move a first strip of flexible material longitudinally in one direction past a loading station, loading means at the loading station operable to place an insert onto said first strip each time a section of that strip is held stationary at the loading station, means operable to cause a second strip of flexible material to overlies a said insert positioned on the first said strip at said loading station, and securing means operable to secure said strips together along a transverse zone between each two adjacent said inserts.

18. A series of labels including, a carrier strip, and a plurality of labels located on said carrier strip and arranged end to end in the longitudinal direction of that strip, wherein each said label includes a flexible pouch and an insert located within that pouch, said pouch includes a base sheet which is removably attached to said carrier strip by adhesive and a top wall which overlies the base sheet, said top wall and said base sheet are secured together along two spaced zones extending transverse to said carrier strip while said insert is interposed between the top wall and the base sheet, said zones are located on respective opposite sides of the insert, said pouch has a mouth adjacent a longitudinal edge of said carrier strip and through which the said insert may be removed from the pouch, and each said label is removable from said carrier strip independent of the other said labels.

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Complete Specification for the invention entitled:

"A LABEL AND METHOD AND APPARATUS FOR PRODUCING SAME"

Our Ref: IRN 218882
TJC:KH

The following statement is a full description of this invention, including the best method of performing it known to applicant(s):

"A LABEL AND METHOD AND APPARATUS FOR PRODUCING SAME"

5 This invention relates to labels adapted to be applied to a product or a product container. The invention is particularly, but not exclusively, concerned with labels of the kind which include instructions for the use or care of the associated product. It will be convenient to hereinafter describe the invention with particular reference to chemical products, but a label according to the invention has much wider application.

10 A chemical product such as a herbicide for example, requires instructions for correct use and also requires an appropriate notice concerning its (possibly) poisonous nature and other dangers which may result from mishandling or misuse. Various techniques have been adopted in an attempt to meet those needs in a manner which is convenient to the end user and which ensures continuing appearance of the danger or warning notice. Such attempts have not been entirely satisfactory for a number of reasons.

20 Part of the difficulty is that the use instructions are sometimes quite extensive and therefore require a multi-page or folded document. Also, in the case of herbicides for example, the product container may be placed in circumstances where it is exposed to the weather, and consequently the label needs to be resistant to moisture. Still further, the container may be subjected to rough handling which could damage or dislodge the label.

30 One technique widely adopted is to have a stick-on label which comprises a fan-fold or similar part providing the necessary information - i.e., instructions and warning notices. Such a label forms the subject of Australian patent application 53660/86. Labels of that kind are unsatisfactory because they are not adequately resistant to moisture and rough handling. Furthermore, the end user will sometimes remove the label from the container because of the inconvenience of reading the information while the label is attached to the container, and the important warning notice may be included in the section of label

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removed. If the removed label is subsequently lost or misplaced, the product is left without an important safeguard against improper or dangerous use.

5 Another technique involves the use of a wallet or envelope of transparent sheet material (e.g., PVC) which contains a removable information leaflet or the like, and which is secured to the product or product container by adhesive. The necessary warning notice and other information is printed on the body of the wallet so as to
10 be retained on the product or the container after removal of the leaflet. A significant problem with this technique is the need to insert the information leaflet into the wallet by hand. That is a labour intensive and expensive operation. Also, it is commonly the case that individual
15 labels need to be applied by hand to a carrier sheet on which the labels are transported to the relevant product manufacturer.

It is an object of the present invention to overcome or at least minimise the aforementioned difficulties. It
20 is a particular object of the invention to provide a wallet or pouch type label which can be applied by means other than hand. It is a further object of the invention to provide a method and apparatus for manufacturing such a label.

25 In accordance with one aspect of the invention, there is provided a method of producing labels including the steps of;

intermittently moving a first strip of flexible material longitudinally in one direction past a loading
30 station so that respective sections of said strip are sequentially located and held stationary at said loading station;

and placing an insert on each said section, causing a second strip of flexible material to overlie
35 that insert, and securing said strips together along a transverse zone, while the respective said section is stationary at said station;

each said zone extending transverse to the
39 longitudinal axis of said first strip and being located

adjacent an edge of the respective said insert which is the trailing edge of that insert relative to said direction of movement;

5 whereby a said zone is located between each two adjacent said inserts.

According to a further aspect of the invention, there is provided apparatus for producing labels including, feed means operable to intermittently move a first strip of flexible material longitudinally in one
10 direction past a loading station, loading means at the loading station operable to place an insert onto said first strip each time a section of that strip is held stationary at the loading station, means operable to cause a second strip of flexible material to overlie a said
15 insert positioned on the first said strip at said loading station, and securing means operable to secure said strips together along a transverse zone between each two adjacent said inserts.

A label according to the invention is characterized
20 in that it comprises a flexible wallet or pouch having a self-adhesive backing, and an insert which is contained within the wallet or pouch. The adhesive backing of the wallet or pouch enables that item to be conveniently secured to the surface of a product or product container,
25 and the flexible nature of the wallet or pouch enables it to be attached to surfaces which may or may not be flat. The wallet or pouch is constructed so that the insert is removable from and is replaceable within the wallet or pouch. In a preferred form, printing is provided on the
30 body of the wallet or pouch so that information is retained on the associated product or product container when the insert is separated from the wallet or pouch.

Preferably, at least the outermost wall of the wallet or pouch is transparent so that the presence or
35 otherwise of the insert can be easily detected by visual inspection. It is to be understood however, that either or each of the outer wall and the inner wall may be opaque, semi-opaque or transparent, according to
39 requirements. Various materials may be used to form the

wallet or pouch, but polyolefins such as polyethylene are generally preferred because they have the characteristics of lightness, flexibility, and resistance to deterioration by moisture, and they are capable of being recycled. Heat sealability is another relevant characteristic.

Labels according to the invention may be supplied to the user (the product manufacturer) in any appropriate form. It is generally preferred however, to provide a supply of labels, each of which is removably attached to an appropriate carrier, rather than providing the labels individually. The label supply may be in roll, fan-fold, or sheet form, according to preference or requirements.

Automatic attachment of the labels to a product or product container is usually facilitated if the label carrier is in strip form and a single series of labels is provided along the length of that strip. Nevertheless, the label supply may be composed so that at least initially, there is a plurality of columns of labels and a plurality of rows of labels mounted on the carrier. In that event, it is generally preferred that the carrier is capable of division, either in the direction of the rows or the direction of the columns, so as to produce a number of separate strips each of which carries an individual series of labels. That is, each such series comprises one of the aforementioned rows or columns.

It will be convenient to describe the invention in greater detail by reference to a particular method and a particular apparatus for forming the labels, or label supply. That method and that apparatus are to be understood as examples only, as other methods and apparatus could be adopted. Furthermore, the form of the label and the form of the label supply hereinafter described, are not the only possible forms of the label or label supply respectively.

Embodiments of the invention are described in detail in the following passages of the specification which refer to the accompanying drawings. The drawings, however, are merely illustrative of how the invention might be put into effect, so that the specific form and arrangement of the

various features as shown is not to be understood as limiting on the invention.

In the drawings:

5 Figure 1 is a view of a label according to one embodiment of the invention mounted on a carrier strip.

Figure 2 is a cross sectional view taken along line II-II of Figure 1.

Figure 3 is a view similar to Figure 2 but showing the label pouch opened for access to the interior.

10 Figure 4 is a view similar to Figure 2 but showing the various components of the label in separated relationship.

Figure 5 is a cross-sectional view taken along V-V of Figure 1.

15 Figure 6 is a diagrammatic view of a carrier strip with a series of labels of the kind shown in Figure 1.

Figure 7 is a diagrammatic view of one form of apparatus for producing labels according to Figure 1.

20 Figure 8 is an enlarged view of part of the apparatus shown in Figure 7.

Figure 9 is a view of part of a strip of labels formed by the apparatus of Figure 7.

25 In the particular example shown in the accompanying drawings, the label 1 comprises a base sheet 2, a top wall 3, a flap 4, and an insert 5. The flap 4 is not necessary and will not be provided in some embodiments of the invention. Figures 1 to 5 show the label 1 as part of an assembly or label supply 6 which includes a backing or carrier 7 to which the label 1 is removably attached.

30 The base sheet 2 and the top wall 3 form the body of a wallet or pouch 8 which contains the insert 5, and the insert 5 is removable from the wallet 8 through an open mouth 9 (Figure 3). Under normal conditions, the mouth 9 is closed by the flap 4 as shown in Figure 2. The top wall 3 is welded or heat sealed to the base sheet 2 along two sides 10 and an end 11. The flap 4 is welded or heat sealed to the base sheet 2 along an end 12 of the wallet 8 and ends 13 of the flap 4, which correspond to the sides 35 10 of the top wall 3.

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It will be appreciated from the foregoing that the various components of the wallet 8 are relatively arranged so that the interior is accessible through the opening 9, subject only to obstruction provided by the flap 4. That obstruction is reduced by tearing the flap 4 along the ends 13 when it is required to gain access to the insert 5. The flap 4 remains attached along the wallet end 12, but the tearing along the flap ends 13 enables the flap 4 to be lifted as shown in Figure 3. Such an arrangement has a security characteristic in that there is clear visible evidence of the wallet having been opened.

Other wallet arrangements could be adopted. As previously stated, a flap 4 may not be provided in some arrangements. Also, the wallet 8 may be fully closed or sealed in the initial condition of the label so that tearing or cutting is required to gain access to the insert 5.

In one form of the wallet 8, the back surface 14 (Figure 4) of the base sheet 2 has an adhesive layer whereby the wallet 8 can be firmly secured to a product or product container. Under those circumstances, the carrier 7 is preferably formed of a material to which the wallet 8 can be attached by the adhesive, but which will peel away from the wallet 8 without disturbing the ability of the adhesive to subsequently create a strong bond with the aforementioned product or product container. In particular, the carrier 7 can be peeled-off without removing the adhesive from the base sheet 2.

It is preferred that either or both the base sheet 2 and the top wall 3 is or are adapted to receive printing. In those instances where the label 1 is to be used in circumstances requiring the continuous presence of a warning or cautionary notice, that notice can be printed on the base sheet 2 and/or the top wall 3. The insert 5 may be a leaflet, pamphlet, or booklet containing information as appropriate.

The label supply 6 may be in the form of a strip having a series of separate labels 1 as shown in Figure 6. In the arrangement shown, a separation space 15 exists

between adjacent labels 1 so as to facilitate individual removal of the labels 1 for attachment to a product or product container. The supply 6 is thereby made suitable for automatic label attachment.

5 A label supply 6 as described can be produced in any appropriate manner. In a preferred method, a strip or web 16 (Figure 7) of material forming the base sheet 2 is intermittently fed through or by a series of stations including a loading station 17 for the insert 5, and at
10 least one welding station at which the top wall 3 is welded or heat sealed to the strip or web 16. If a flap 4 is provided, that may be also welded or heat sealed to the strip or web 16 at the welding station. It is a feature of the method that the strip or web 16 remains stationary
15 while the insert 5 is deposited on that strip or web 16, and it continues to remain stationary while the top wall 3 (or flap 4) is welded or heat sealed to the strip or web 16 at a location behind the edge of the insert 5 which is the trailing edge relative to the direction of movement of
20 the strip or web 16. Because of that welding or heat sealing operation, the insert 5 is positively retained against being dislodged during subsequent movement of the strip or web 16.

Other features of the method will be apparent from
25 the following description of one form of apparatus suitable for manufacturing labels 1 according to the invention.

Figure 7 shows the apparatus in diagrammatic form, and Figure 8 is a diagrammatic plan view of the loading
30 station 17, with parts being omitted for convenience of illustration. As shown in Figure 7, the strip or web 16 is fed from a suitable supply 18 and, in the example under discussion, comprises two components. One of those components forms the carrier 7 and the other forms the
35 base sheet 2. Intermittent movement of the strip or web 16 in the direction of the arrow A can be achieved in any suitable manner. According to one method, a clamp 19 is actuated to grip the strip or web 16, and while that grip
39 is maintained the clamp 19 is moved in the direction of

arrow A through a predetermined distance. The clamp 19 is then released and moved back to its initial position for a subsequent operation, while the strip or web 16 remains stationary. It is preferred that a second clamp 20 operates to hold the strip or web stationary during that return movement of the first clamp 19.

Loading of individual inserts 5 onto the strip or web 16 can be achieved in any suitable manner. In the example shown, a supply of inserts 5 is provided in a suitable storage 21 located to one side of the strip or web 16, and a pusher 22 is operated to move a single insert 5 from that storage 21 onto the strip or web 16 (Figure 8). A stop 23 may be positioned over the strip or web 16 so as to establish correct location of the insert 5 as shown in broken line in Figure 8. The pusher 22 is then withdrawn to its initial position to receive another insert 5 as shown in full line in Figure 8.

It may be desirable under some circumstances to have the pusher 22 and the clamp 19 interconnected so as to move in unison in the longitudinal direction of the strip or web 16. That is, the pusher 22 moves backwards and forwards along the strip or web 16 together with the clamp 19. That interconnection may be through a feed frame (not shown).

In the particular example shown, a welding or heat sealing operation takes place at the loading station 17 while the strip or web 16 is held stationary by the clamp 20. A welding bar 24 is positioned at that station and cooperates with a strip or web 25 of material fed from a supply 26. That strip or web 25 comprises two components, one of which is intended to form the top wall 3 and the other forms the flap 4. Alternatively, the material for the top wall 3 and the flap 4 respectively may be fed from individual supply sources. Furthermore, as previously stated, a flap 4 may not be provided in some embodiments of the label 1.

The welding bar 24 is initially in the position shown in broken line in Figure 7, at which it bears against the strip or web 25. After deposit of the insert

5, the bar 24 is moved to the left to the position shown in full in Figure 7, and by that operation causes the strip or web 25 to adopt a position at which it creates an overlay for the deposited insert 5. While the bar 24 is in the last mentioned position, it is moved down to press the strip or web 25 against the strip or web 16. At that time, the bar 24 is located behind the edge of the insert 5 which is the trailing edge relative to the direction of movement of the strip or web 16. The bar 24 is then energised to secure the strips or webs 16 and 25 together along a transverse zone. In the arrangement shown, each such transverse zone comprises two transverse and laterally separated lines 26 of weld or seal (Figures 8 and 9). The line 27 shown in Figure 9 represents the free edge 27 of the flap 4 as shown in Figures 1 to 4.

The bar 24 may be connected to the clamp 19, for example through the aforementioned feed frame, so as to move backwards and forwards in unison with the clamp 19.

As a consequence of the aforementioned welding operation, the newly deposited insert 5 is trapped between two sets of weld lines 26, as shown in Figure 8. The set of lines 26 forward of the insert 5 was produced as a consequence of a corresponding welding operation which occurred behind the trailing edge of an insert 5 which was previously deposited on the strip or web 6.

Upon completion of the welding operation, the bar 24 is moved back to the position shown in broken line in Figure 7, and the strip or web 16 is moved one step by operation of the clamp 19 as previously described. The clamp 20 is of course released to permit that movement to take place.

A further welding or heat sealing operation occurs at station 28 (Figure 7). That further operation secures the flap 4 and top wall 3 to the base sheet 2 along lines or zones 29 and 30 respectively which extend in the longitudinal direction of the strip or web 16 (Figure 9). A cutting station (not shown) may be provided downstream from the welding station 28. In that event, a cutting die located at the cutting station may be operable to cut

through the material from which the base sheet 3 and flap 4 are formed, so as to create the outline or periphery of each individual label 1 as shown in Figures 1 and 6. The cut which forms that outline of a label 1 will be located outside the welded side and end edges 10, 11, 12 and 13, as shown in Figure 1. The cut does not penetrate through the carrier 7, and the material outside the label outline is waste material and is preferably removed from the carrier 7 at an appropriate time.

In the arrangement shown in Figure 7, the waste material is represented by reference numeral 31, and that material 31 is stripped from the carrier 7 at station 32 so as to produce the individual and separated labels 1 as shown in Figure 6. After that operation, the label assembly 6 may be wound or fan-folded as required for supply to the end user. If desired, a printing station 33 may be positioned between stations 17 and 32.

The method and apparatus described are open to variation without departing from the objectives of the invention as previously stated. For example, the welding bar 24 may be arranged so as to produce all or part of each weld line 29 and 30, simultaneous with producing the weld lines 26. Also, the form of the label package can be significantly different to the example shown and described. In particular, the peripheral shape of each label 1 need not be rectangular as shown.

It will be appreciated from the foregoing description that the method and apparatus of the invention permits convenient manufacture of label packages in such a way that the individual label so produced can be subsequently applied automatically to a product or product package. The method and apparatus described has the particular advantage of not requiring the label inserts to be retained in place on the base sheet by adhesive or the like. Such retention is required in prior methods so as to avoid the insert being dislodged from its position as the base sheet is moved through the apparatus which carries out the method steps.

Various alterations, modifications and/or additions

may be introduced into the constructions and arrangements
of parts previously described without departing from the
spirit or ambit of the invention as defined by the
appended claims.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A method of producing labels including the steps of;
intermittently moving a first strip of
5 flexible material longitudinally in one direction past a
loading station so that respective sections of said strip
are sequentially located and held stationary at said
loading station;
and placing an insert on each said section,
10 causing a second strip of flexible material to overlies
that insert, and securing said strips together along a
transverse zone, while the respective said section is
stationary at said station;
each said zone extending transverse to the
15 longitudinal axis of said first strip and being located
adjacent an edge of the respective said insert which is
the trailing edge of that insert relative to said
direction of movement;
whereby a said zone is located between each
20 two adjacent said inserts.
2. A method according to claim 1, wherein the
longitudinal axis of said second strip is substantially
parallel to the longitudinal axis of said first strip, at
least over that part of said second strip which overlies a
25 said insert.
3. A method according to claim 1 or 2, wherein said
strips are secured at each said zone by being welded
together at the respective said zone.
4. A method according to claim 3, wherein each said
30 zone includes two lines of weld which are separated in the
longitudinal direction of said first strip.
5. A method according to any preceding claim, wherein
said strips are secured together along a longitudinal zone
on each of two opposite sides of each said insert, and
35 each said longitudinal zone extends between two adjacent
said transverse zones and is located laterally outwards of
the adjacent side of the respective said insert.
6. A method according to claim 5, wherein said strips
39 are secured together at each said longitudinal zone by

being welded together at the respective said zone.

7. A method according to claim 5 or 6, wherein said longitudinal zones are formed alongside each said insert after the respective said insert has been moved beyond said loading station.

8. A method according to any preceding claim, wherein means which is operative to secure said strips together along said transverse zones, is also operative to cause said second strip to overlies each said insert.

9. A method according to any preceding claim, wherein said first strip is composed of a carrier part and a label forming part which are arranged in face to face relationship, an adhesive layer is provided on a lower surface of said label forming part, said carrier part extends over and is removable from said adhesive layer, and each said insert is placed on an upper surface of said label forming part.

10. A method according to claim 9, wherein a cut is formed around each said insert and extends through said second strip and the underlying label forming part of the first strip so as to form individual labels which can be removed from said carrier part and each of which contains a said insert.

11. Apparatus for producing labels including, feed means operable to intermittently move a first strip of flexible material longitudinally in one direction past a loading station, loading means at the loading station operable to place an insert onto said first strip each time a section of that strip is held stationary at the loading station, means operable to cause a second strip of flexible material to overlies a said insert positioned on the first said strip at said loading station, and securing means operable to secure said strips together along a transverse zone between each two adjacent said inserts.

12. Apparatus according to claim 11, wherein said securing means operates to form a said transverse zone each time a said insert is positioned on said first strip at said loading station, and the said zone so formed is located adjacent an edge of the respective said insert

which is the trailing edge of that insert relative to said direction of movement.

13. Apparatus according to claim 11 or 12, including side welding means located beyond said loading station and being operable to secure said strips together adjacent and laterally outwards of each of two opposite sides of each said insert.

14. Apparatus according to any one of claims 11 to 13, including cutting means located beyond said loading station and being operable to form a cut around each said insert, each said cut extending through said second strip and the label forming part of said first strip.

15. Apparatus according to any one of claims 11 to 14, wherein said securing means is a welding bar.

16. Apparatus according to claim 15, wherein said welding bar is operable to form two lines of weld which are spaced apart in the longitudinal direction of said first strip.

17. Apparatus according to claim 15 or 16, wherein said welding bar is movable relative to and in the longitudinal direction of said first strip between a first position and a second position, said bar engages against and causes said second strip to overlies a said insert when said bar is being moved from said first position to the second position, and said welding bar is operable to secure said strips together when in said second position.

18. A series of labels including, a carrier strip, and a plurality of labels located on said carrier strip and arranged end to end in the longitudinal direction of that strip, wherein each said label includes a flexible pouch and an insert located within that pouch, said pouch includes a base sheet which is removably attached to said carrier strip by adhesive and a top wall which overlies the base sheet, said top wall and said base sheet are secured together along two spaced zones extending transverse to said carrier strip while said insert is interposed between the top wall and the base sheet, said zones are located on respective opposite sides of the insert, said pouch has a mouth adjacent a longitudinal

edge of said carrier strip and through which the said insert may be removed from the pouch, and each said label is removable from said carrier strip independent of the other said labels.

5 19. A series of labels according to claim 18, wherein said adhesive is an adhesive backing on said base sheet by means of which the respective said label can be attached to a product or a product container, each said label is spaced from adjacent said labels in the longitudinal
10 direction of said strip, and said strip is removable from said adhesive backing.

20. A series of labels according to claim 19, wherein said carrier strip with said labels attached is formed as a roll so as to be usable in an automatic label applicator.

15 21. A series of labels according to claim 18, 19 or 20 when formed in accordance with the method of any one of claims 1 to 10.

22. A series of labels substantially as herein particularly described with reference to what is shown in
20 the accompanying drawings.

23. A method of producing labels substantially as herein particularly described with reference to what is shown in the accompanying drawings.

24. Apparatus for producing labels substantially as
25 herein particularly described with reference to what is shown in the accompanying drawings.

30 DATED: 2 February, 1994

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ABSTRACT

5 A method of producing labels of the kind comprising
a wallet and an insert within that wallet which contains
information or instructions. The method includes the
steps of intermittently moving a first strip past a
loading station at which an insert is placed on the strip
each time the strip is held stationary at that station. A
10 second strip of flexible material is caused to overlay the
insert while the first strip is stationary, and is secured
to the first strip along a line extending transverse of
that strip and which is located behind the edge of the
insert which is the trailing edge of that insert relative
15 to the direction of travel of the first strip. The insert
deposit, second strip overlay, and securing operations,
are repeated each time the first strip is held stationary
at the loading station. The invention also extends to
apparatus for carrying out the method, and a label formed
20 by the method.

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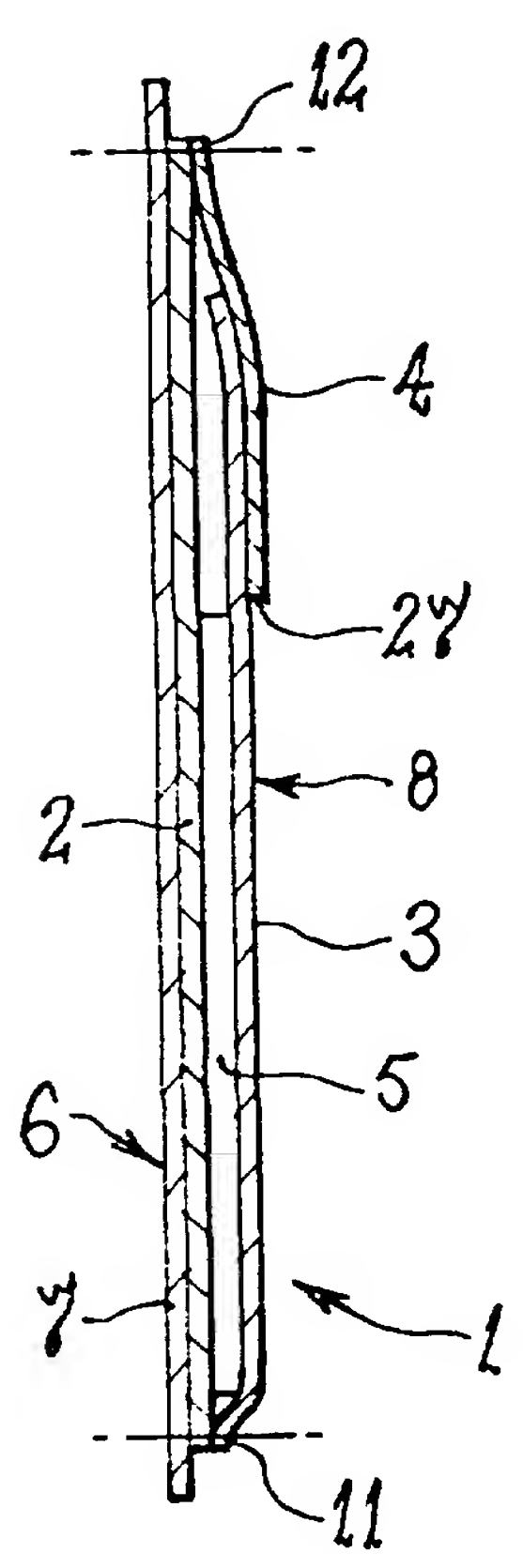
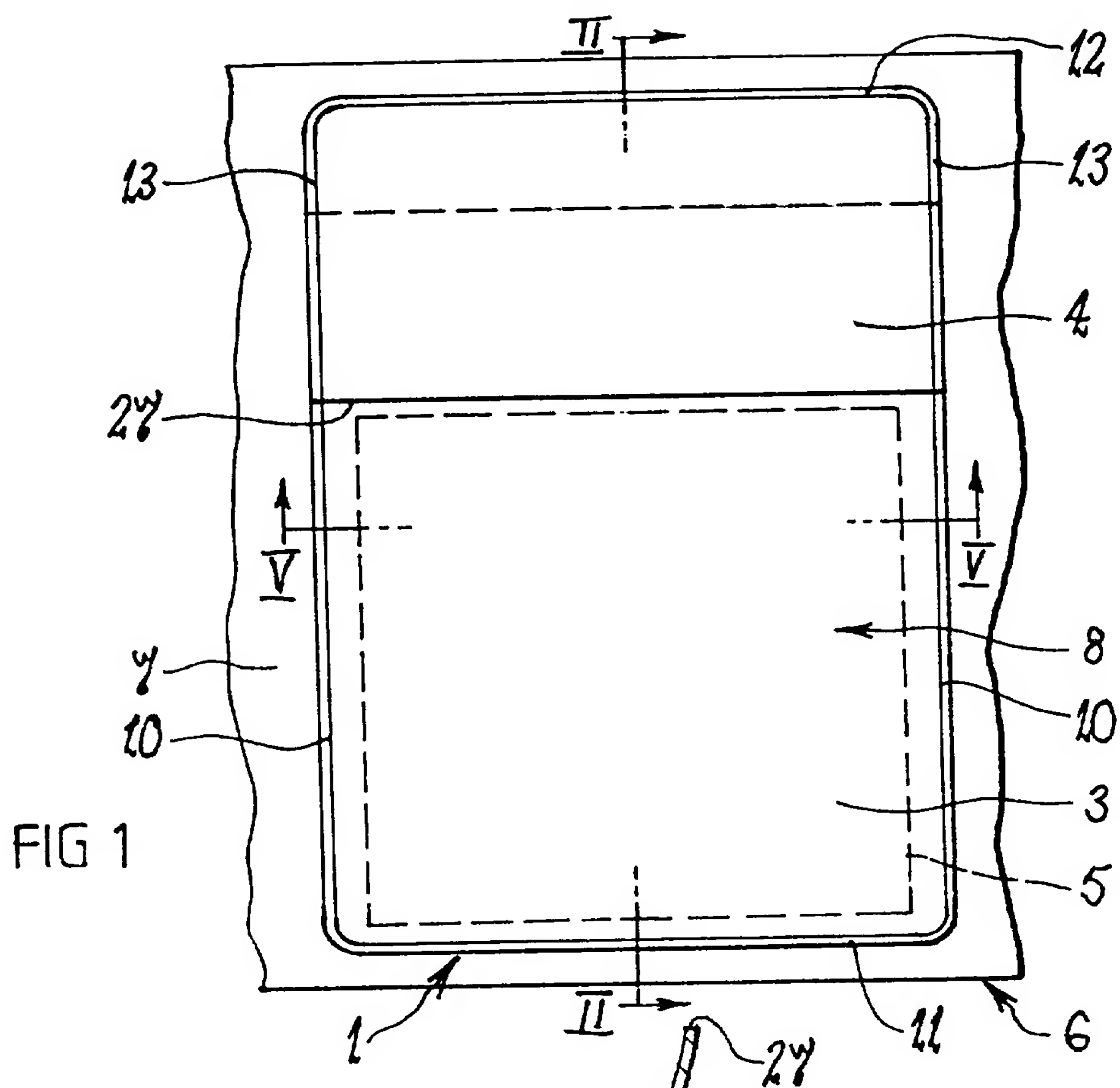


FIG 2

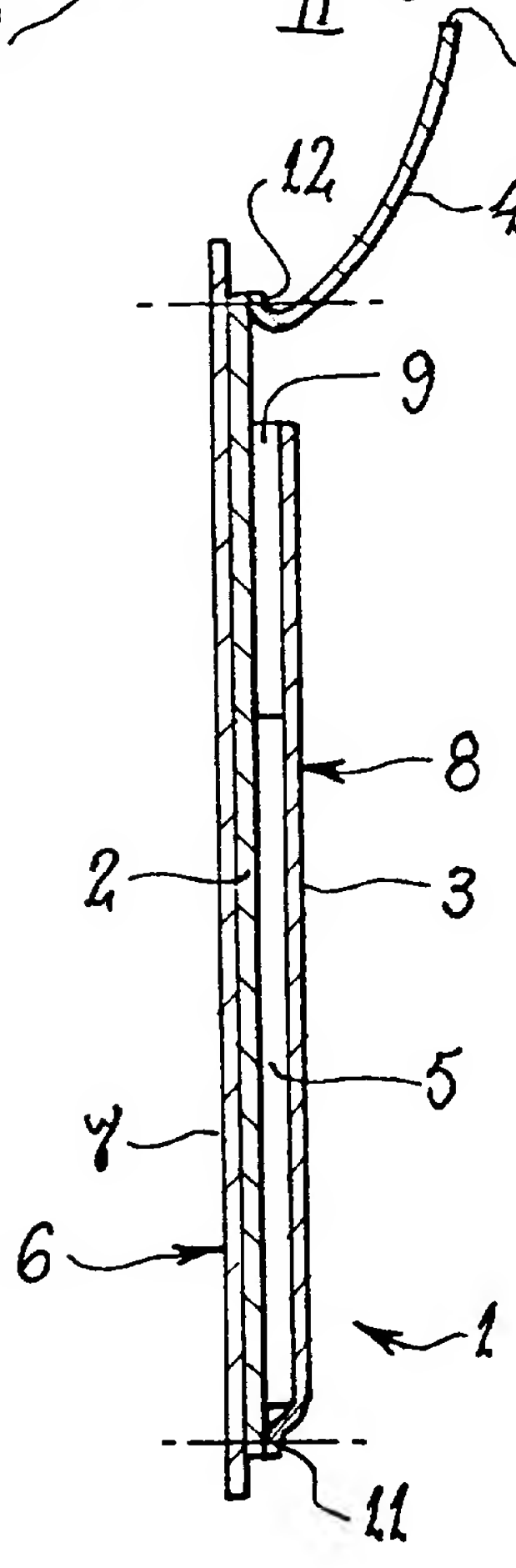


FIG 3

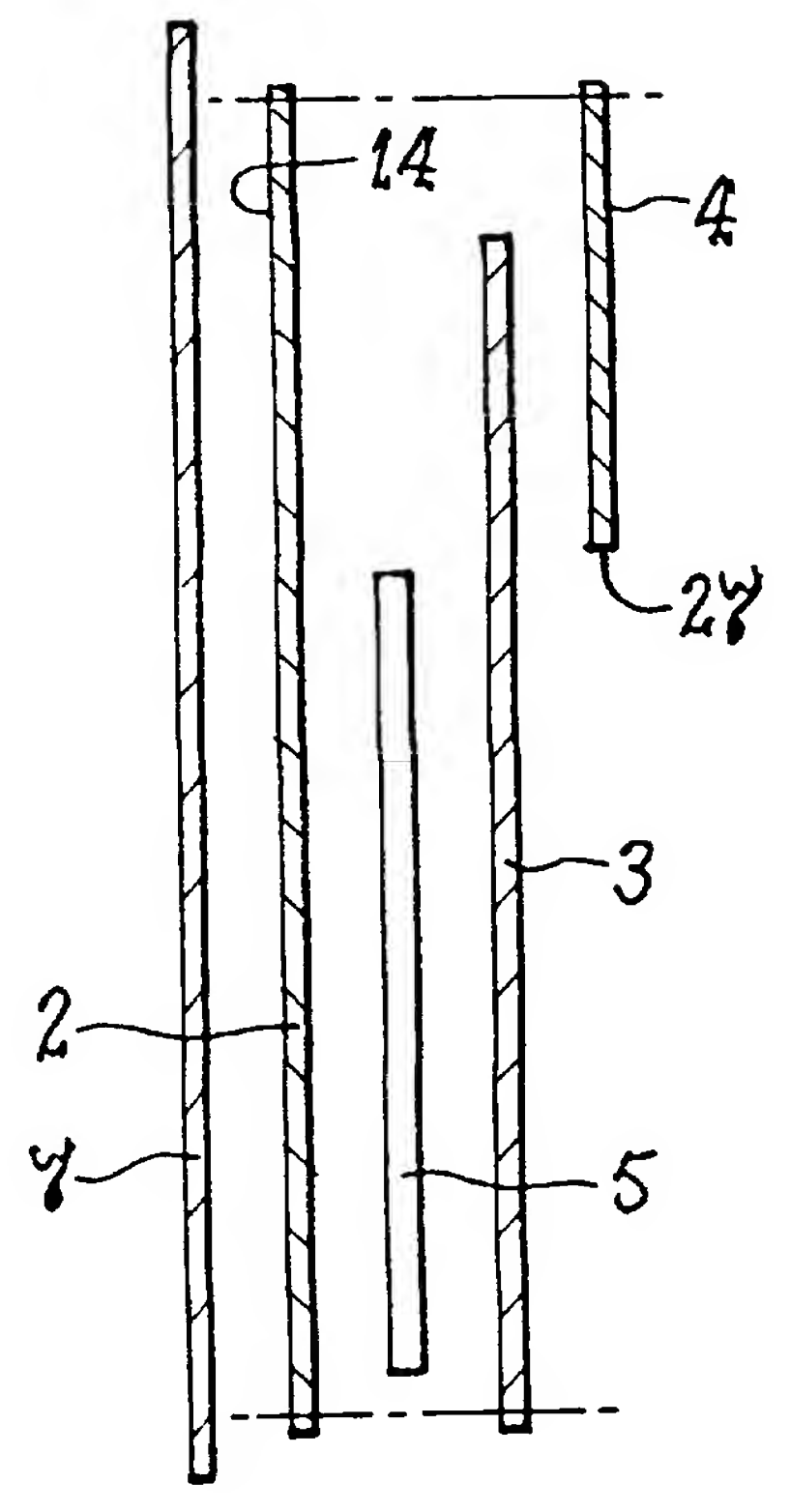


FIG 4

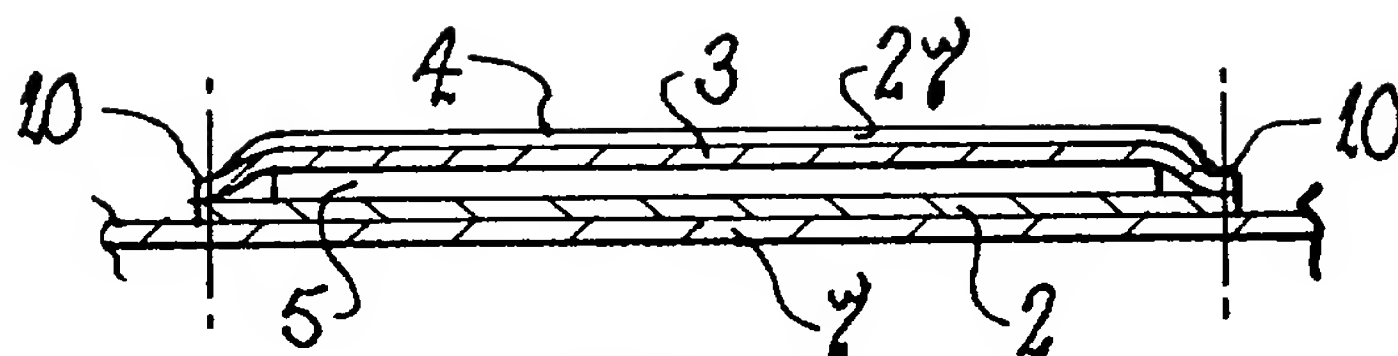


FIG 5

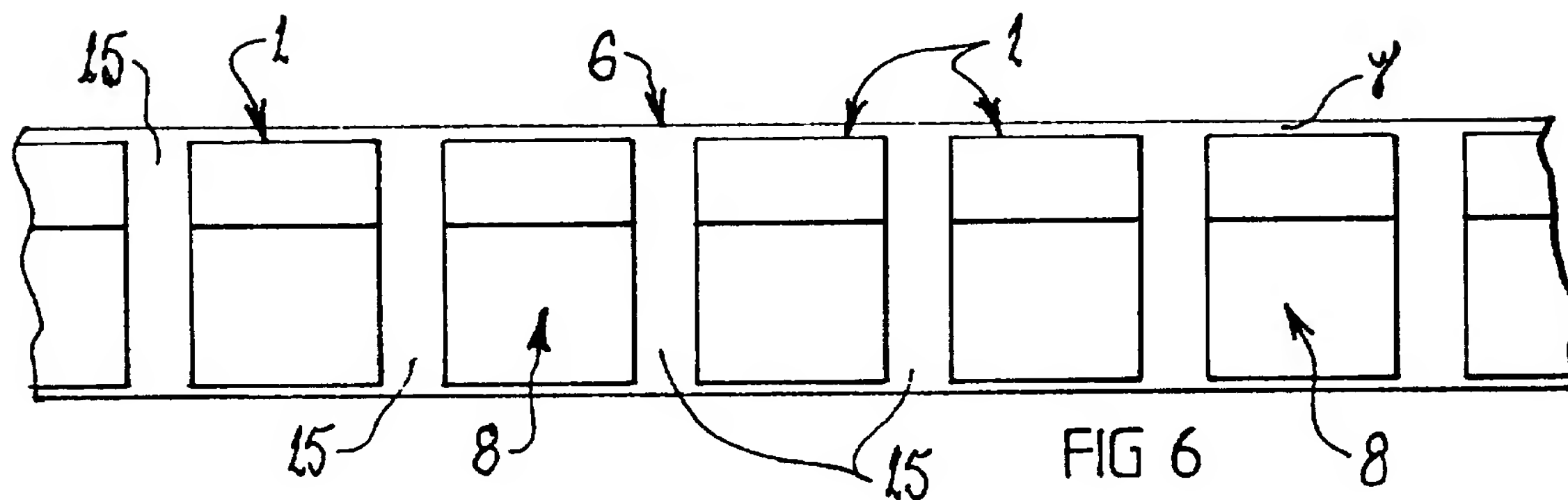


FIG 6

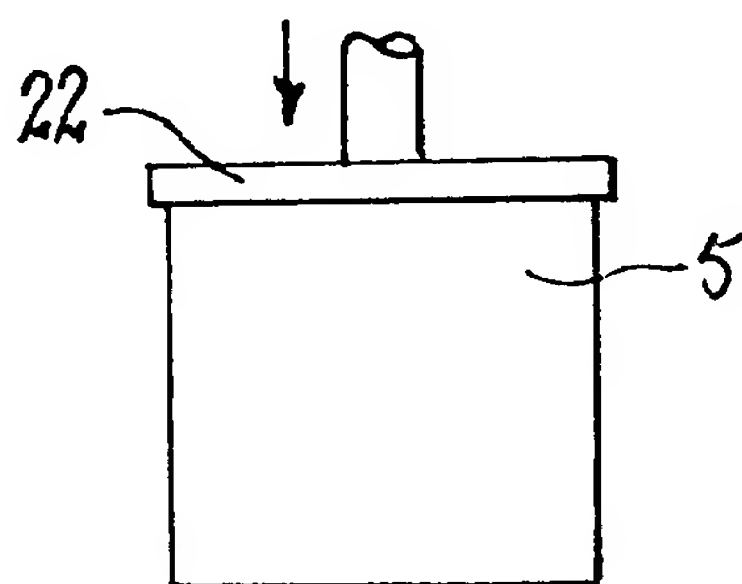


FIG 8

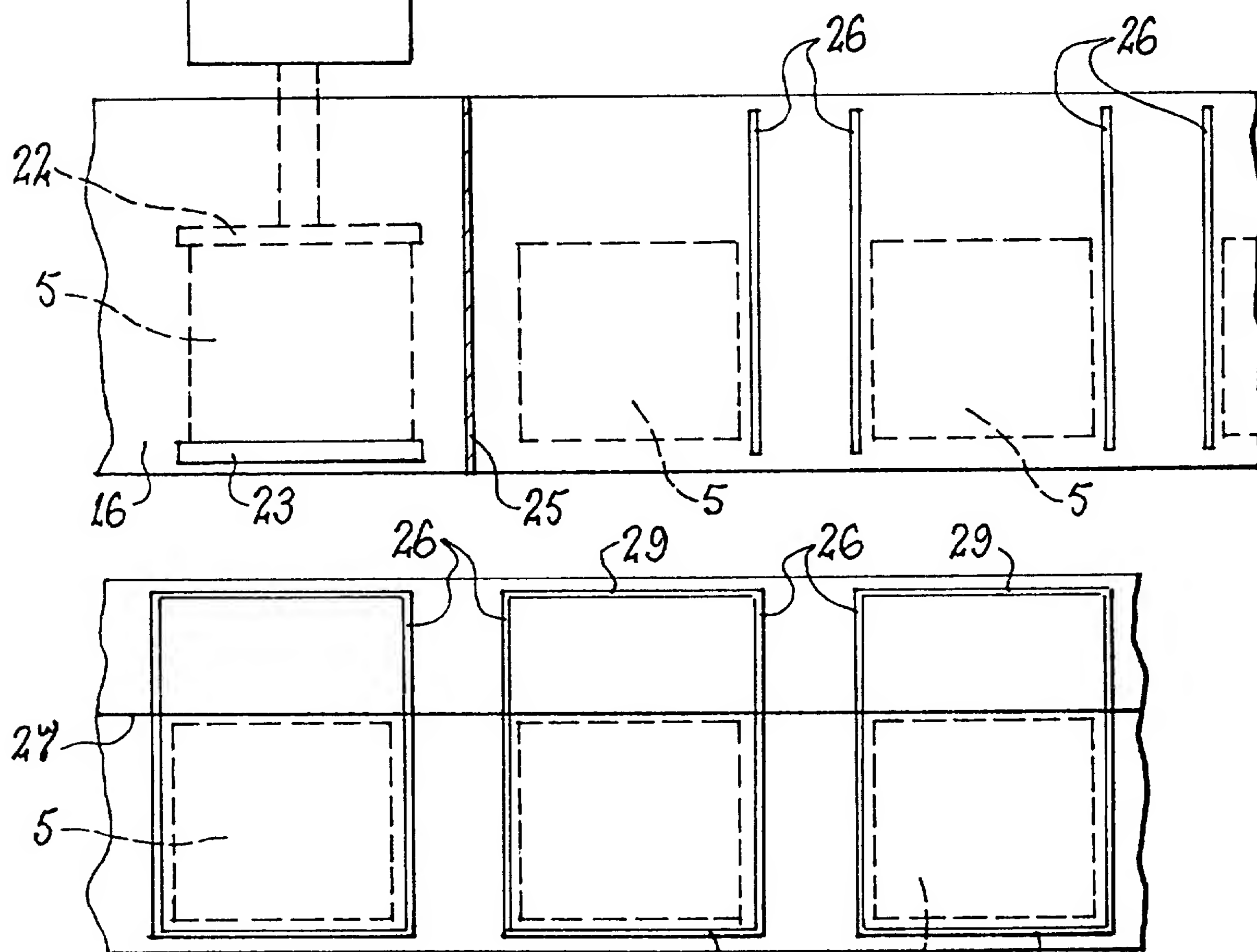


FIG 9 30

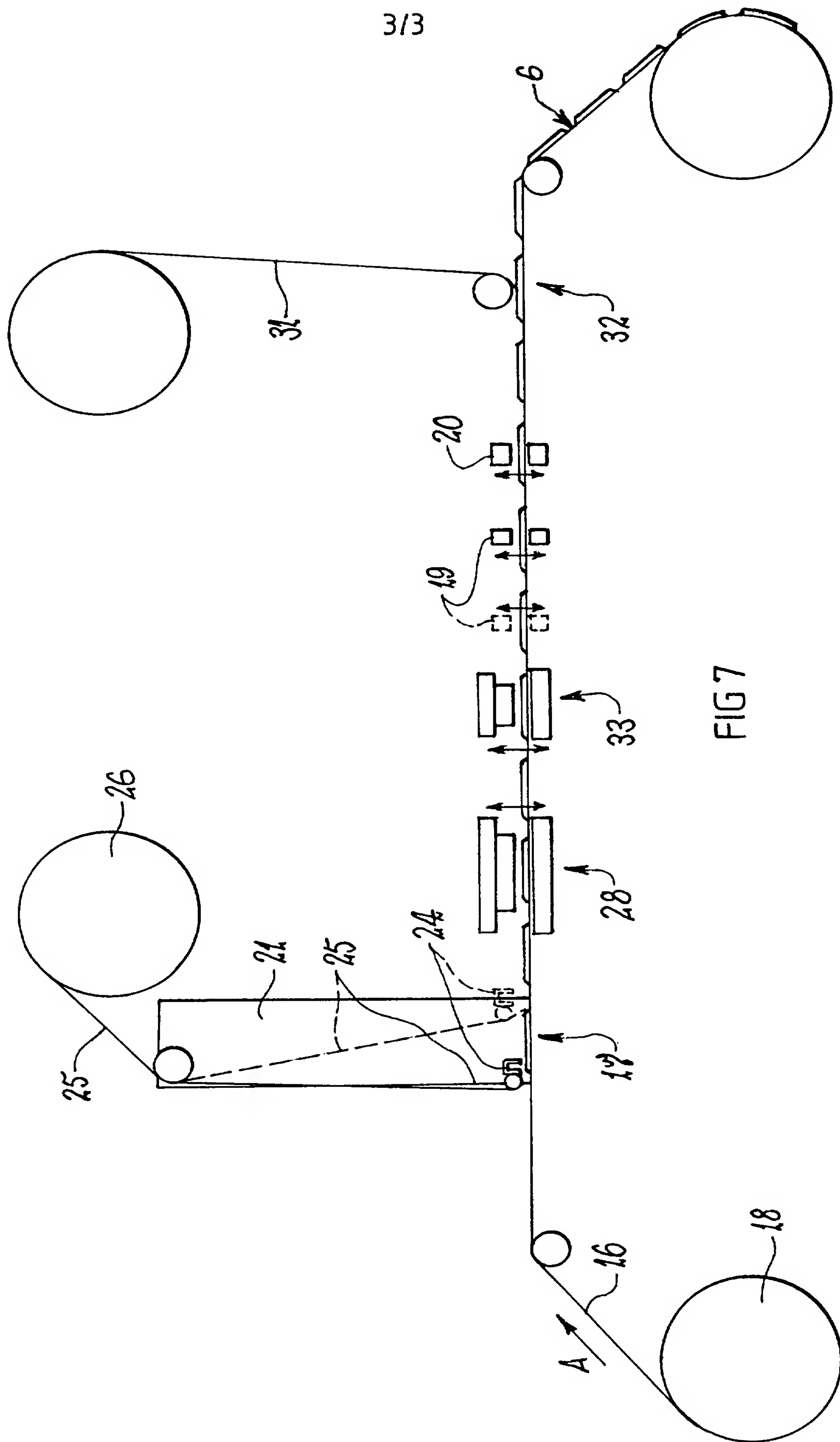


FIG 7